



Land and Freshwater Mollusca of the Cayman Islands. (Figures followed by a are actual size, the others enlarged.)

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LAND MOLLUSCA OF THE CAYMAN ISLANDS COLLECTED BY THE OXFORD UNIVER- SITY BIOLOGICAL EXPEDITION, 1938

BY H. A. PILSBRY

The Oxford University Biological Expedition to the Cayman Islands, a party of five under the leadership of Mr. W. G. Alexander, was in the field from April 17 to August 27, 1938. The primary interests of the Expedition were botanical, entomological, herpetological and ichthyological, but nearly every group of animals received some attention. The small collection of mollusks which was casually gathered by Mr. C. B. Lewis is admittedly incomplete and is largely from Grand Cayman, the islands of Little Cayman and Cayman Brac being poorly represented.

The bulk of the collection and the types will be deposited in the British Museum (Natural History); paratypes have been deposited in the Museum of the Academy of Natural Sciences of Philadelphia.

Previous information on the mollusk fauna of Grand Cayman is contained in two papers:

1930. Pilsbry, H. A. Results of the Pinchot South Sea Expedition: I. Land Mollusks of the Caribbean Islands, Grand Cayman, Swan, Old Providence and St. Andrew, Proc. Acad. Nat. Sci. 82: 221-239.

1930. Pilsbry, H. A. *Ibid.*, II, pp. 352, 353.

Reference to former literature may be found in these publications. In the following list the records are for Grand Cayman except where otherwise stated.

The collection on which this report is based has added seven species and two subspecies, and the following genera to the Grand Cayman fauna: *Geomclania*, *Alcacia*, *Microceramus* and *Tropi-corbis*.

In my first paper of 1930 a list was given on p. 225 to show the affinities of the species with those of other regions. The additions now made do not materially alter the percentages there given. Of the additional forms, exclusive of culture snails:

4 species of 3 genera are purely Jamaican in their affinities (*Poteria*, *Lacteoluna*, *Varicella*).

1 species seems nearest a Cuban form, but similar species occur also in Jamaica (*Alcadia*).

5 species in which the closest affinities elsewhere are undetermined (*Cepolis*, *Geomelania*, *Microceramus*, *Tropicorbis*, and *Drepanotrema*). *Cepolis* and *Geomelania* occur in both Cuba and Jamaica, and an anatomic study of Cayman species is needed to show where they belong. The genera *Microceramus*, *Tropicorbis* and *Drepanotrema* are so widely scattered in the Antilles and mainland that they are not significant in this connection.

CYCLOPHIORIDAE

Poteria fonticulus Preston

Bos'un Bay, West Bay area; Boilers, near Georgetown.

Poteria caymanensis Pilsbry

Boilers, near Georgetown (from a deep sink in the "karst" limestone).

Poteria caymanensis oligoptyx, new subspecies. Pl. 1, figs. 12, 12a, 13, 13a.

Battle Hill, eastern end of Grand Cayman about 2 miles inland. (C. B. Lewis, July 3rd, 1938).

The shell is similar to *P. caymanensis* in form and the rather wide umbilicus. The surface of the first whorl is smooth, the rest finely striate axially, and at and above the periphery having some weak, retractive corrugation, obsolete on the last part of the last whorl and locally developed elsewhere.

Height 10.3 mm., diameter 15.3 mm.; 4-1/3 whorls.

Height 8.5 mm., diameter 14 mm.

It differs from *P. caymanensis* only by the weakness of the oblique corrugation, constant in five specimens taken; but as the greater part of the island is still unexplored, it is quite possible that intermediate stages of sculpture may exist. For this reason the subspecific rank has been used. If intermediate stages are not found it will be considered a species.

In a larger shell, height 11.8 mm., diameter 18.3 mm., only a faint trace of corrugation is visible. It is from the eastern sea-side settlement known as East End.

Poteria laevitesta Pilsbry

Branching of Forest Glen Rd. from Further Land Rd., North Side area, about 1½ miles inland from north coast.

POMATIASIDAE

Chondropoma parvicaymanense Pilsbry

Pond south of Salt Rocks Hill, west end of Little Cayman.

Chondropoma caymanense Preston

Numerous specimens with typical sculpture were taken on the Newtown Road at Governor's Sound.

A weakly differentiated race was taken at the Savage-English Cisterns, on the north coast. The spiral cords are somewhat narrower and often, but not always, more numerous. It reaches a slightly greater size, length 12.7 mm., with 4½ whorls remaining.

Chondropoma caymanbracense Pilsbry

Halfway across bluff, bush road behind Stakes Bay, Cayman Brae.

Colobostylus rosenbergianus (Preston)

Boilers, near Georgetown.

Colobostylus caymanicola Pilsbry

Battle Hill, Company Land, and Great Beach, localities two to three miles into the interior of the eastern end of Grand Cayman; branching of Forest Glen Road from Further Land Road, North Side area.

TRUNCATELLIDAE

Geomelamia alemon, new species. Plate 1, fig. 9.

Boilers, near Georgetown (C. B. Lewis, August, 1938).

The shell has the usual cylindrical shape and deeply constricting sutures of the genus. The whorls are strongly convex, with sculpture of strong axial ribs separated by far wider intervals which are very closely and minutely striate spirally. The last whorl runs free at the end. Aperture broadly ovate, the peristome free, obtuse, its outer and basal margins expanded.

Diameter above aperture 1.1 mm.; length of aperture 0.95 mm.

This is described from specimens which have lost much of the spire, but it should be recognizable by the sculpture. The last four whorls are of equal diameter. It is the only species of this genus known from the Caymans. It is somewhat like *G. lyrata* Poey, of Cuba, but differs from that, as well as from the smaller Jamaican species, by the free aperture and coarser sculpture.

HELICINIDAE

Helicina fasciata substriata Gray

Battle Hill, interior of eastern end of Grand Cayman; branching of Forest Glen Road from Further Land Road, north side area; Newtown Rd., Governor's Sound; English Sound (off Great Sound); Bos'un Bay, West Bay area.

Alcadia lewisi new species. Plate 1, fig. 4.

Halfway across bluff, bush road behind Stakes Bay, Cayman Brae (C. B. Lewis, May 26th, 1938).

The shell is similar in general form to *A. minima* (Orb.). The spire is convexly conic, the apex obtuse, the periphery rounded, base slightly convex. The suture is only lightly impressed. Being dead and bleached, no trace remains of periostracum or color. The half-round aperture is oblique. Peristome is very slightly expanded, very slightly thickened, barely perceptibly excavated at the base, next to the columella. The columellar callus is flat and rather small.

Height 3 mm., diameter 4.5 mm.; 4 whorls.

The very shallow, hardly noticeable notch of the basal lip at foot of the columella, differentiates this species from *A. minima* of Cuba, which it resembles otherwise. It is the first *Alcadia* from the Cayman Islands.

HELMINTHOGLYPTIDAE

Cepolis (Hemitrochus) streatori Pilsbry

Boilers; Newtown Road, Governor's Sound.

Cepolis (Hemitrochus) lewisiana, new species. Plate 1, figs. 14, 14a.

Battle Hill, interior of eastern end of Grand Cayman (C. B. Lewis, July 1st, 1938).

The depressed shell is thin, narrowly umbilicate, of a uniform light buff color. The spire is low conic, apex obtuse, the pe-

riphery obtusely angular, base convex. Surface rather glossy, with weak lines of growth. The oblique aperture is wide, white within. Peristome narrow, the outer margin narrowly expanded, the umbilical half of the basal margin reflected, dilated over and covering the greater part of the umbilicus.

Height 8 mm., diameter 14.5 mm.; 4 whorls. Type.

Height 9.7 mm., diameter 15.1 mm.

While this species is evidently closely related to *C. streatori*, it is a thinner, unicolored shell, with the umbilicus decidedly more widely open, and it has about half a turn less.

Cepolis (Hemitrochus) caymanensis "Maynard" Pilsbry. Plate 1, figs. 10, 10a, 11, 11a.

Cotton Tree Land; west end of Cayman Brac. figs. 10, 10a, represent the type specimen. Figs. 11, 11a, are a shell having the spiral bands continuous, but with some darker streaks.

SAGDIDAE

Lacteoluna caymanensis Pilsbry

Boilers, near Georgetown; branching of Forest Glen Road from Further Land Road, North Side area; Battle Hill, interior of eastern end. The generic position of species herein referred to *Lacteoluna* is uncertain, as no Cayman specimens have been dissected.

Lacteoluna summa Pilsbry

Ridge north of Savannah Land, eastern end of Grand Cayman.

Lacteoluna cistula, new species. Plate 1, fig. 7.

At branching of Forest Glen Road from Further Land Road, North Side area.

The shell resembles *L. caymanensis* but differs in smaller size, higher spire and larger umbilicus, contained about $5\frac{1}{2}$ times in the diameter. The surface of the dead shell is weathered, so that microscopic sculpture, if present, is not visible.

Height 3 mm., diameter 4.6 mm.

BULIMULIDAE

Orystyla undata jamaicensis Pilsbry

3 specimens, taken alive at Georgetown.

UROCOPTIDAE

Brachypodella caymanensis Pilsbry

Newtown Road, at Governor's Sound.

Microceramus caymanensis, new species. Plate 1, fig. 8.

Battle Hill, interior of eastern end of Grand Cayman. Type

from branching of Forest Glen Road from Further Land Road, North Side area.

A species related to *M. concisus* of Guatemala and Yucatan, but differing by its broader shape, the spire with decidedly convex outlines, and the individual whorls more strongly convex. The first $1\frac{1}{2}$ whorls are glossy, with fine, weak axial striation. Subsequent whorls with strong, retractively axial striation; on the spire every second stria terminating in a sutural papilla (or in some specimens these papillae are partly obsolete), the last turn often without papillae. There is a blunt, low keel on the back of the last whorl. The shell is whitish, maculate with pale brown.

Length 8.5 mm., diameter 3.6 mm.; 9 whorls.

This belongs to a group of very similar Microcerami, occurring on the mainland, in Jamaica, Haiti, Cuba and Florida. The Grand Cayman form appears somewhat nearer to the continental *M. concisus* than to the West Indian species.

CERIONIDAE

Cerion martinianum (Küster).

Old Isaacs', eastern end of Grand Cayman.

Lewis writes: "*Cerion martinianum* is abundant along the entire western coast of Grand Cayman, in many places literally covering the vegetation at the top of the long West Bay Beach.

"I searched quite carefully but never found any living examples of the species along the eastern coast. It is very curious, however, that the sand, which extends behind the storm beach some 200 yards to the foot of the abruptly rising Miocene 'bluff,' is strewn with dead shells. The people of these parts all claim that these shells were washed up during the terrible hurricane of 1932. They were strange to the people of the district and as a result many bottles were filled and kept as curiosities."

The form *C. martinianum caymanense* Pilsbry is apparently confined to the north shore, east of the Great Sound. It is weakly differentiated from *C. martinianum* by the usually smaller size and the presence of dark stripes, but the size and color are variable and there seems to be complete intergradation with *martinianum*.

Small examples measure:

Length 16.2 mm., diameter 8.4 mm.

Length 16.5 mm., diameter 6.9 mm.

Length 21 mm., diameter 9.2 mm.

The localities follow: Sand Cay, head of Ford's Creek, off Great Sound (Plate 1, figs. 2, 2a); behind English Cisterns (Plate 1, figs. 1, 1a).

According to Lewis' notes, "On Sand Cay the *Cerion* were almost confined to *Thrinax argentea*, the silver thatch, and were abundant on the under side of the leaves."

Cerion pannosum (Maynard).

Muddyfoot's Point, east end of Little Cayman; also behind South Town.

Cerion pannosum copium (Maynard).

Point at west end of Cayman Brae.

Cerion laevigatum (Maynard).

Behind South Town, at west end of dead mangrove swamp, Little Cayman.

SUBULINIDAE

Subulina octona (Bruguière).

Branching of Forest Glen Road from Further Land Road, North Side area; Georgetown.

Opcas micra (Orbigny).

Newtown Road at Governor's Sound; Boilers, near Georgetown.

OLEACINIDAE

Varicella caymanensis, new species. Plate 1, fig. 6.

Branching of Forest Glen Road from Further Land Road, North Side area.

The shell is slender, of 6 whorls joined by a moderately impressed suture; the diameter contained slightly more than three times in the length. The whorls are slightly convex, the last approaching a cylindrical form. About $1\frac{1}{2}$ whorls are smooth, the rest closely and finely grooved vertically. On the last whorl there is a low varix not far behind the lip (in the type). The aperture is short, broader than in *V. pinchoti*, contained about 2.6 times in the total length. Outer lip is smoothly finished and arches gently forward, receding at the base. The short columella is concave, abruptly truncate at base.

Length 9.8 mm., diameter 3 mm.; length of aperture 3.6 mm.

This snail is at once separable from *V. pinchoti* Pils. by the concave columella. Also the sculpture is finer and closer and the form slimmer. It agrees with *V. pinchoti* in having $1\frac{1}{2}$ smooth apical whorls.

Varicella caymanensis ampla, new subspecies. Plate 1, fig. 5.

Found with the preceding species, and similar to that in sculpture and the concave columella. It is larger and the last whorl is broader than in that species.

Length 10.7 mm., diameter 3.6 mm.; length of aperture 4.6 mm.

This probably represents a separate species, but as only a single specimen was taken, the constancy of its differential characters is uncertain.

SUCCINEIDAE

Succinea latior C. B. Adams.

Newtown Road, Governor's Sound behind Savage-English Cisterns, north coast; branching of Forest Glen Road from Further Land Road, North Side area.

PLANORBIDAE

Tropicorbis havanensis insularum, new subspecies.

Cow well, Further Land Road, North Side area, Grand Cayman. (C. B. Lewis, July 17th, 1938).

A miniature of *T. havanensis* (Pfr.), the left side sunken in the middle, the right side narrowly umbilicate there; periphery equably rounded. Aperture strongly oblique, the lip thin. Height 1.4 mm., diameter 4.3 mm.; $4\frac{1}{4}$ whorls.

These small planorbs may represent a dwarf ecologic form rather than a true subspecies, but as it has been found only in a single place, it seems simpler to give it a varietal name. The specimens are evidently adult from the deflection of the last whorl at the aperture. They have much the general appearance of *Gyraulus*.

It may be mentioned here that the species I recorded as "*Planorbis* aff. *lanicrius* Orb." (1930, Proc. Acad. Nat. Sci. Phila., 82: 239), is an immature specimen of *Drepanotrema lucidum* (Pfr.), of which *P. lanicrius* Orb. is a synonym.

The two freshwater shells of Grand Cayman belong to widely spread groups. *Drepanotrema lucidum* occurs in several West

Indian islands and on the mainland. *Tropicorbis havanensis* is a Cuban species, but scarcely distinguishable forms occur in Jamaica and elsewhere. The small Cayman form described above has not been found elsewhere, so far as our collections show.

EXPLANATION OF PLATE

Figs. 1, 1a. *Cerion martinianum* form *caymanense* Pils., actual size and $\times 2$. Behind English cisterns.

Figs. 2, 2a, 3, 3a. *Cerion martinianum* form *caymanense* Pils., actual size and $\times 2$. Sand Key.

Fig. 4. *Alcacia lewisi*, n. sp., face of type.

Fig. 5. *Varicella caymanensis ampla*, n. subsp. Type.

Fig. 6. *Varicella caymanensis*, n. sp. Type.

Fig. 7. *Lacteoluna cystula*, n. sp. Type.

Fig. 8. *Microceramus caymanensis*, n. sp. Type.

Fig. 9. *Geomelania alemon*, n. sp. Type (spire broken).

Figs. 10, 10a. *Cepolis caymanensis* Pils. Type, actual size and enlarged.

Figs. 11, 11a. *Cepolis caymanensis* Pils. Cotton Tree Land, Cayman Brae.

Figs. 12, 12a, 13, 13a. *Poteria caymanensis oligoptyx*, n. subsp. Type and paratype, actual size and enlarged.

Figs. 14, 14a. *Cepolis lewisiana*, n. sp., actual size and enlarged.

Fig. 15. *Tropicorbis havanensis insularum*, n. subsp. Type, enlarged.

SOME DEEP-SEA PHILIPPINE VOLUTIDS*

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On April 21, 1915, a banquet to Dr. William Healey Dall commemorating the completion of fifty years of service to science, 1865-1915, was tendered him at the Cosmos Club of Washington by more than 100 associates and friends. At this gathering the following toasts were delivered:

Dall the Alaska Pioneer	Dr. Alfred H. Brooks
Dall the Anthropologist	Prof. Wm. H. Holmes
Dall the Coast Pilot	Mr. Isaac Winston
Dall the Malacologist	Dr. Henry A. Pilsbry
Dall the Paleontologist	Dr. T. Wayland Vaughan
Dall the Zoologist	Dr. C. Hart Merriam
Dall the Nomenclatorist	Dr. Ch. Wardell Stiles

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